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United States Department of Agriculture

Conservation Effects Assessment Project (CEAP)

Watershed Fact Sheet

Salt River/Mark Twain Watershed, Missouri: 2004-2009

An ARS* Benchmark Research Watershed, one of 24 CEAP watershed projects.

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CEAP Assessment

Evaluate water and soil quality effects of best management practices (BMPs) for herbicide, nutrient, and sediment contamination.

Watershed Description

- 1,611,500 acres (Salt River Basin)
- Predominantly agricultural
- A Total Maximum Daily Load (TMDL) limit has been set for allowable levels of sediment.
- Watershed is a participant in the Clean Water Act Section 319 Nonpoint Source Pollution Program.

Issues: Runoff from farms, growing beef and swine feedlots, carries excess nutrients, pathogens, sediment, and herbicides to Mark Twain Lake, the drinking water reservoir for about 40,000 people.

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Typical aerial photograph of the Mark Twain Lake watershed, showing riparian corridors, grassed waterways, and the within-field spatial variation that is common to the area.



View of runoff coming through a flume to measure flow rate, and an autosampler to collect water for analyses of nutrients and herbicides.



Runoff from 80-acre field watershed after storm during the 1993 flood year. The weir allows calculation of flow rate from height measurements, and samplers nearby collect samples for nutrient and herbicide analyses.



View of Mark Twain Lake from Clarence Canon Dam.

Approach

Water Sampling: Pesticides, phosphorus, nitrate-nitrogen, sediment, and pathogens from livestock manure

Watershed Models: SWAT (Soil and Water Assessment Tool)

Research: Effectiveness, economics of various BMPs and weed management methods.

Communicating Results

Three annual progress reports planned. Also, new or re-designed BMPs, decision support system based on SWAT data, recommendations by crop for entire Salt River basin, and journal articles.

Collaborators

- USDA Natural Resources Conservation Service
- Food and Agricultural Policy Research Institute
- Environmental Resources Coalition
- Missouri Corn Growers Association

Contacts

Bob Ball, State CEAP Coordinator
(luana.kiger@ca.usda.gov)

John Sadler, USDA ARS contact
(SadlerJ@missouri.edu)

Robert Lerch, Watershed Leader
(LerchR@Missouri.edu/)

NRCS State Conservationist
Roger Hansen

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